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ABSTRACT

This review of the literature related to research on oral communication in the classroom pursues two issues: the types of oral contributions students make and whether those types are related to school achievement. In considering research on oral communication in classrooms, the paper looks at information that considers whether the communication was an initiation or a response, the relation of student performance of pedagogical moves to student achievement, the cognitive properties of various classroom discourses, and the linguistic properties of student talk. It then briefly provides direction for improving student oral communication in classrooms. (TJ)

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STUDENTS' ORAL CONTRIBUTIONS TO CLASSROOM VERBAL INTERACTION.

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INTRODUCTION

This paper is concerned with research on oral communication in classrooms. Its coverage is limited to systematic observational research and particularly to research on students' oral contributions. Two main questions are pursued:

1. What types of oral contributions do students make?
2. Are those types of contributions related to school achievement?

At the end of the paper questions concerned with improving students' oral contributions are raised and promising approaches to the training of teachers are mentioned. Issues that are not included in the paper include relationships between background characteristics of students and their use of oral language in the classroom.

RESEARCH ON ORAL COMMUNICATION IN CLASSROOMS

In their attempts to integrate systematic observational research on classroom behaviour, Dunkin and Biddle (1974) found it convenient to conceptualise the facets of concern of researchers as follows: classroom climate; management and control; the classroom as a social setting; knowledge and intellect; and logic and linguistics. Accordingly, this paper reviews evidence pertinent to the two questions raised above as it has been provided by research into each of those facets in turn. While each of those facets is a potentially fruitful source of information about oral communication in classrooms, some of them have yielded more information about students' contributions than others.

Initiation and Response

Most of the research into classroom climate and management and control reviewed by Dunkin and Biddle (1974) either did not observe students' oral communications as such or employed only two categories into which they could be classified. The most common of the approaches employed the Flanders Interaction Analysis Categories (Flanders, 1970) or related instruments and so were confined to observing merely whether students' talk was initiating or responding to teachers' initiatives. In addition, by combining those two, measures of the total amount of student talk were obtained. Thus, evidence was produced that in standard, more formal contexts, where whole class teaching methods are employed, students talk for a total of between twenty and thirty percent of verbal

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interaction time, and that their contributions are mostly in response to requests from the teacher and much less often are initiated by themselves.

None of the studies included in Dunkin and Biddle's review found significant relationships between any of those measures of student talk and student achievement. However, more recently Dunkin and Doenau (1979) found evidence that student initiations were related to student achievement but that the relationship was different for student initiating by way of questioning and students initiating that consisted of assertions. In one case, student initiating questions were found to be significantly negatively correlated with subject matter knowledge, while in another case other types of student initiations were significantly positively correlated with that type of achievement. It seems, therefore, that the matter of initiation and response are more complex than first thought by researchers in this area, and that advocacy of increases in one or the other need to be undertaken with caution.

Pedagogical Moves

Much more information about students' oral contributions has been forthcoming from explorations of the classroom as a social system featuring the performance of verbal moves. Here again, the main finding has been that students' classroom roles are predominantly those of respondents to teachers' solicitations. Bellack and his colleagues (Bellack et al., 1966) in researching the performance of pedagogical moves in New York high schools found that while teachers performed over eighty percent of structuring, soliciting and reacting moves, students did almost all of the responding. These findings have held true across national and cultural boundaries in Australia (Power, 1971), Sweden (Lundgren, 1972) and Papua New Guinea (Dunkin, 1977) but seem to apply particularly to large group lesson formats and not so much in small group discussions where Baumgart (1972) found that students contributed a higher proportion of soliciting and reacting moves and a lower proportion of responding moves. Neujahr (1970) found that pupils emitted more structuring, soliciting and reacting moves and fewer responding moves in individualised lessons than in whole-class lessons.

Results of attempts to relate student performance of pedagogical moves to student achievement are informative. In his very carefully conducted classroom experiment, Hughes (1973) found that the sheer amount of student responding was unrelated to achievement, that students whose responses were relevant to specific items of the achievement test performed no better than students who were merely the audience when those responses were made, and that student opportunity to predict or even control when they would be called upon to respond was unrelated to achievement. More recently, Dunkin (1978) found that an average of only sixteen percent of achievement test items were covered in student

responses and that the average student made less than one test relevant response in the lesson. However, the correlation between the number of relevant responses per student and student achievement was positive and statistically significant. Similarly, Dunkin and Doenau (1979) found that the number of subject-matter knowledge test items covered in verbal interactions between teachers and students was significantly and positively associated with student acquisition of subject-matter knowledge both in the short and longer terms and with student critical thinking achievement. However, Dunkin and Doenau also found that on average only about twenty percent of subject matter test items were covered in teacher-student interactions. It should, of course, be mentioned that both Dunkin and Dunkin and Doenau found that content coverage through teacher structuring or informing and the total amount of content covered whether by the teacher or the teacher and students in interaction tended to correlate more highly with student achievement than content coverage involving student talk.

Finally, Dunkin and Doenau also found some indication that the length of student utterances was positively associated with student achievement.

So far this paper has been concerned mainly with the quantity, content-relevance and length of student responses and to less extent with the frequency of student initiations. The substantive density of student oral participation in the classroom has been found more closely related to student achievement than its sheer frequency, or initiating quality. Substantiveness is, however, only one intellectual facet of student behaviour. It remains now to consider research on the cognitive types and levels of student contributions.

Cognitive Levels

Dunkin and Biddle (1974) reviewed research conducted within several different conceptual orientations to the analysis of the cognitive properties of classroom discourse. Briefly the main concern of researchers, regardless of the particular set of cognitive categories they employed, seemed to be with distinguishing between "higher", and more complex, as against "lower", less complex operations and between convergent, less creative and divergent, more creative operations.

In general, the research reviewed by Dunkin and Biddle (1974) had found that the great majority of student contributions, whether at primary or secondary school level, and independently of subject area, were lower level, that is, involved statements of factual knowledge, simple descriptions, names, definitions, personal experiences and the like, with a heavy demand upon recalling from memory. Higher level responses - those involving problem solving, analysis, explaining, inferring, evaluating and other "processing" operations - were in the minority. More recently, Dunkin and Doenau (1979) found

that about one third of teachers' questions concerning the subject matter of the lesson were higher level, while Dunkin (1978) found that one quarter of teachers' questions relating to specific items on the achievement test based on the prescribed content on the lesson and given after the lesson were higher level. Similarly, Dunkin and Biddle's review found that convergent rather than divergent production was predominant.

While a common finding in this body of research has been that the qualities of student responses are closely associated with the types of demands made by the teachers, that is, that teachers usually reap what they sow, there is some evidence that student responses of the higher level type are not always there for the asking. Smith and Meux (1962) found that the logical operations of defining, explaining and evaluating were often performed elliptically even in high school classroom discourse, with some elements in the formal logical models of these processes missing from explicit communication.

Subsequently, the studies by Nuthall and Lawrence (1965) and Tisher (1970) included detailed analyses of lesson episodes concerned with various logical types of explaining. Both studies found that incongruency, that is, mismatch between the logical demands of a question and the logical properties of a response, often occurred when students were called upon to give causal, teleological and normative explanations. Whether the incongruencies thus identified were due to cognitive deficiencies in the students or to vagueness and ambiguity in the teachers' questions, or both, was not apparent from the data themselves. However, findings by Nuthall and Lawrence, Tisher, Bellack et al. (1966) and Zahorik (1968) that teachers often reacted positively to incongruent student responses suggest that teachers might be more concerned with other objectives than explicit good logic.

Dunkin and Biddle (1974) were able to find only two studies in which the cognitive level of student responses was explored in relation to student achievement! The evidence of those studies (Taba et al.,1964; Taba, 1966) was that student use of higher level thought units, of itself, was unrelated to achievement on tests measuring abilities to make acceptable inferences, to discriminate, to avoid overgeneralisations, to be appropriately cautious in reaching conclusions, and general knowledge of social studies facts, concepts and principles.

Clearly, much more research on the logical properties of students' oral contributions is required before conclusions about their adequacy and significance for achievement can be stated confidently. Much more attention has been given to these issues in relation to teacher questioning. While some reviewers agree that the bulk of the evidence is that lower level questions are more conducive to student achievement than higher level ones; (Program on

Teaching Effectiveness, 1976), the most recent review claimed that "no sturdy conclusion can be offered here about the relative effectiveness of teachers' use of higher cognitive questions for enhancing student achievements" (Winne, 1979, p.57). Interestingly enough, one reason given for the inconclusiveness of the results was that researchers had neglected to investigate whether or not higher level teachers' questions had the assumed immediate impact on what students were doing to learn from teaching.

Linguistics

The final section of this review concerns the linguistic properties of student talk. It will be seen that research has emphasised surface features, through the analysis of lexical choice and the measurement of length of utterances, as well as transformational grammar, through the analysis of reconstructed discourse, to gather information about such properties of nouns and noun substitutes as case, person, number, gender and address form, and sign, mode, embedding, conjoining and adjoining of phrases or sentences.

One of the most successful attempts to analyse surface features of classroom discourse was made by Hiller et al. (1969) as part of a larger project at Stanford University in which the verbal processes of lecturing were examined. One of the variables explored in the project was vagueness, defined solely in lexical terms as the number of times any of some 233 key words, or in some cases short phrases, appeared in teachers' explanatory lectures. The vagueness list consisted of such words and phrases as "things", "almost", "of course", "not sure", "some", "sorts", "could be", and "probably". Each teacher was given a score on the use of "vagueness indicators" and it was found that those scores were negatively associated with student achievement on two different occasions. Unfortunately, since there was no student talk in either set of lessons, there could be no information concerning student vagueness. More recently, Land and Smith (1979) experimented with teacher vagueness, while Dunkin (1978) and Dunkin and Doenau (1979) researched both teacher and student vagueness. All three studies provided further evidence that teacher vagueness is negatively related to student achievement. However, the latter two studies found that for two lesson topics non-significant negative relationships existed between student vagueness and achievement, but for a third topic significant positive relationships existed with both subject matter knowledge and critical thinking achievement.

Other findings by Dunkin, and Dunkin and Doenau, involving student vagueness were that it increased with the proportion of higher level questions asked by the teacher, with the number of long student utterances, with the percentage of pupils participating orally, and with the proportion of rejected

student responses. It decreased with teacher informing at the end of interactive episodes.

Hays and his colleagues (1971) reported findings for other surface features. In their study, teachers used three times as many explicit words and utterances as students and five times the number of words that students used.

Evidence concerning semantic concepts based on reconstruction of classroom discourse comes from two studies. The first, by Cambourne (1971), is particularly interesting because it permitted comparisons to be made between discourse at school and at home and between rural and urban contexts. Thus, it was found that student sentences in both classrooms and playgrounds were shorter and less complex, that is, used less embedding, conjoining and adjoining, than at home. In urban classrooms, student sentences were shorter and less complex than in rural classrooms. Cambourne also analysed verbal encounters of students according to whether they were with a single other person (individual encounters), with two or more others (multiple encounters), merely listened to (overheard encounters), and unsuccessful attempts to get others to talk (potential encounters). Classrooms were found to be places where there were more overheard and fewer individual and potential student encounters than homes or playgrounds. In classrooms, individual student encounters were shorter and overheard student encounters were longer than in the other two contexts. Moreover, classroom individual encounters were less often initiated by students than were home or playground individual encounters. Cambourne also found that urban classrooms featured more multiple and overheard student encounters and shorter individual and multiple student encounters than rural classrooms.

Probably the most comprehensive list of linguistic concepts yet to be applied in the analysis of classroom discourse was used by Loflin et al. (1973). Consequently, the number of findings was far too large for all to be included here. Instead a sample of them will be presented. Loflin and his colleagues reported that teachers were more likely than students to use explicit discourse units, to enunciate plural nouns, to use the second person, and to emit nouns that are both feminine and masculine. Teachers were found to use first names more often than students and to utter more questions and demands. Analysis by grade level revealed that in comparison with Grade VI or XI students, Grade I students used more objective nouns, more inanimate references, more first person and fewer third person references, more singular nouns, more feminine and more masculine nouns, fewer examples of embedding and conjoining, and fewer disjunctive links. Grade VI students used more first name references, fewer implicit verbs and more additive links, while Grade XI students used fewer feminine nouns.

None of the three studies reviewed above explored relationships with student achievement and so they produced no evidence of the effects of discourse phenomena on student learning. Implications drawn from their results for the improvement of oral communication in classrooms will, therefore, have to be based on other criteria. At this stage it is especially difficult to assess the educational significance of their findings, perhaps because educationists are not used to employing linguistic concepts in stating educational objectives or in evaluating classroom interaction.

IMPROVING ORAL COMMUNICATION IN CLASSROOMS

The research reviewed above does not seem to amount to a very strong basis for making recommendations for the improvement of oral communication in classrooms. Indeed, if we were to insist upon replicated findings of relationships with student achievement before incorporating any particular category of student behaviour into prescriptions for improvement we would probably be left only with the substantive density of student responses.

Educationists are, however, quite used to discerning directions for development independently of process-product research in classrooms. Thus, some student behaviours are very likely to be valued for reasons other than their contributions to formal school achievement. We are probably more attracted to student oral behaviour featuring activity rather than passivity, initiation rather than response, subject matter relevance rather than irrelevance, logical variety and congruency rather than sameness and incongruency, clarity rather than vagueness, and explicitness rather than implicitness. If those are our preferences then the problem is to discover or devise contents conducive to them. For example, indirect teacher influence has been found conducive to student initiation (Dunkin and Biddle, 1974) and systematic organisation and structure increases academic engaged time (Gage, 1978). Moreover, considerable success has been achieved in training teachers to implement those strategies (Dunkin and Biddle, 1974; Program of Teaching Effectiveness, 1977).

We are much less well-informed about ways of increasing logical variety, congruency, clarity and explicitness in student talk. Some of the questions that lack answers are:

> Are some categories of logical operations beyond the cognitive capacity of students who have not yet reached particular stages of cognitive development?
>
> Can teachers be trained to monitor the adequacy of logical operations in the process of classroom interaction?

Can students be trained to perform complex logical operations explicitly and without vagueness?

Is student vagueness a symptom of ignorance of subject matter or an inevitable concomitant of complex thinking?

Is linguistic explicitness principally a matter of ethnic or social class background and not very amenable to school or teacher control?

These and a host of related questions need to be answered before much improvement in oral communication in classrooms can be expected.

Finally, we need to keep in mind that oral communication is only one aspect of classroom behaviour. There are at least two good reasons for anticipating that correlations between oral performances and school achievement will remain difficult to establish and low to moderate in size. One is that given normal classroom sizes and patterns of organisation, average individual student rates of oral communication are low. Yet learning proceeds and much of it must be vicarious. In other words, for most students most of the information that is communicated orally in classrooms is processed covertly. The other reason is that large proportions of time in classrooms are spent in seatwork with very little oral communication occurring. Presumably, much of the learning that proceeds in this way is achieved independently of oral communication, at least on the part of the students.

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